Alameda Countywide
Clean Water Program

Contra Costa
Clean Water Program

Fairfield-Suisun
Urban Runoff
Management Program

Marin County
Stormwater Pollution
Prevention Program

Napa County
Stormwater Pollution
Prevention Program

San Mateo Countywide
Water Pollution
Prevention Program

Santa Clara Valley
Urban Runoff Pollution
Prevention Program

Sonoma County
Water Agency

Vallejo Sanitation
and Flood
Control District

B A S M A A

Bay Area

Stormwater Management

Agencies Association

P.O. Box 2385

Menlo Park, CA 94026

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September 15, 2015

Bruce Wolfe, Executive Officer
California Regional Water Quality Control Board, San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: FY 2014-15 Annual Report: MRP Provision C.9.e - Track and Participate in Relevant Regulatory Processes

Dear Mr. Wolfe:

This letter and attachments are submitted on behalf of all 76 municipalities subject to the requirements of the Municipal Regional Stormwater NPDES Permit (MRP).

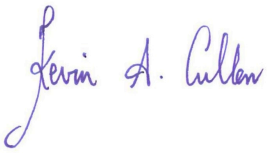
The essential requirements of provision C.9.e (text attached) are to track U.S. Environmental Protection Agency (USEPA) and California Department of Pesticide Regulation (DPR) actions related to urban-uses of pesticides and actively participate in the shaping of regulatory efforts currently underway. This provision allows for cooperation among Permittees through the California Stormwater Quality Association (CASQA), BASMAA, and/or the Urban Pesticide Pollution Prevention Project (UP3 Project) – an approach the Permittees have engaged in for a number of years. Recognizing this approach is the most likely to result in meaningful changes in the regulatory environment, Permittees elected to continue on this course in FY 2014-15 to achieve compliance with this provision. Oversight of this provision is the purview of the BASMAA Board of Directors.

The actual work of tracking and participating in the ongoing regulatory efforts related to pesticides was accomplished through CASQA. CASQA conducted its activities on behalf of members and coordinated funding contributions and activities through its Pesticides Subcommittee, a group of stormwater quality agencies affected by pesticides or pesticides-related toxicity listings, TMDLs, or permit requirements, as well as others knowledgeable about pesticide-related stormwater issues. FY 2014-15 was another productive year for the Subcommittee. The CASQA Pesticides Subcommittee's annual report for FY 2014-15 (attached) provides a comprehensive and detailed accounting of efforts to track and participate in relevant regulatory processes as well as accomplishments related to pesticides and stormwater quality.

We certify under penalty of law that this document was prepared under our direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on our inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of our knowledge and belief, true, accurate, and complete. We are aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

James Scanlin, Alameda Countywide Clean Water Program

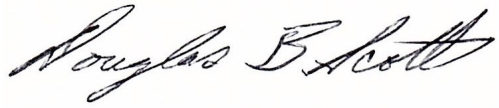
Tom Dalziel, Contra Costa Clean Water Program



Kevin Cullen, Fairfield-Suisun Urban Runoff Management Program

Matt Fabry, San Mateo Countywide Water Pollution Prevention Program

Adam Olivieri, Santa Clara Valley Urban Runoff Pollution Prevention Program



Douglas Scott, Vallejo Sanitation and Flood Control District

Attachments

MRP Provision C.9.e

Pesticides Subcommittee Annual Report and Effectiveness Assessment 2014-2015; California Stormwater Quality Association; August 2015

MRP Provision C.9.e states:

C.9.e Track and Participate in Relevant Regulatory Processes (may be done jointly with other Permittees, such as through CASQA or BASMAA and/or the Urban Pesticide Pollution Prevention Project)

i. Task Description

(1) The Permittees shall track USEPA pesticide evaluation and registration activities as they relate to surface water quality, and when necessary, encourage USEPA to coordinate implementation of the Federal Insecticide, Fungicide, and Rodenticide Act and the CWA and to accommodate water quality concerns within its pesticide registration process;

(2) The Permittees shall track California Department of Pesticide Regulation (DPR) pesticide evaluation activities as they relate to surface water quality, and when necessary, encourage DPR to coordinate implementation of the California Food and Agriculture Code with the California Water Code and to accommodate water quality concerns within its pesticide evaluation process;

(3) The Permittees shall assemble and submit information (such as monitoring data) as needed to assist DPR and County Agricultural Commissioners in ensuring that pesticide applications comply with water quality standards; and

(4) As appropriate, the Permittees shall submit comment letters on USEPA and DPR re-registration, re-evaluation, and other actions relating to pesticides of concern for water quality.

ii. Reporting – In their Annual Reports, the Permittees who participate in a regional effort to comply with C.9.e. may reference a regional report that summarizes regional participation efforts, information submitted, and how regulatory actions were affected. All other Permittees shall list their specific participation efforts, information submitted, and how regulatory actions were affected.

Pesticides Subcommittee Annual Report and Effectiveness Assessment 2014 - 2015

California Stormwater Quality Association

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION®

Final Report

August 2015

Pesticides Subcommittee Annual Report and Effectiveness Assessment

2014-2015

California Stormwater Quality Association

August 12, 2015

Preface

The California Stormwater Quality Association (CASQA) is comprised of stormwater quality management organizations and individuals, including cities, counties, special districts, industries, and consulting firms throughout California. CASQA's membership provides stormwater quality management services to more than 22 million people in California. This report was funded by CASQA to provide CASQA's members with focused information on its efforts to prevent pesticide pollution in urban waterways. It is a component of CASQA's Source Control Initiative, which seeks to address stormwater and urban runoff pollutants at their sources.

This report was prepared by Stephanie Hughes, assisted by Jamie Hartshorn, under the direction of the CASQA Pesticides Subcommittee Co-Chairs Dave Tamayo and Delyn Ellison-Lloyd. The Co-Chairs, along with Dr. Kelly Moran of TDC Environmental, provided documents, guidance, and review.

Disclaimer

Neither CASQA, its Board of Directors, the Pesticides Subcommittee, any contributors, nor the authors make any warranty, expressed or implied, nor assume any legal liability or responsibility for any third party's use of this report or the consequences of use of any information, product, or process described in this report. Mention of trade names or commercial products, organizations, or suppliers does not constitute an actual or implied endorsement or recommendation for or against use, or warranty of products.

Abbreviations Used in this Report

ACS – American Chemical Society
BMPs – Best Management Practices
CASQA – California Stormwater Quality Association
CVRWQCB – Central Valley Regional Water Quality Control Board
CWA – Clean Water Act
DPR – California Department of Pesticide Regulation
EPA – United States Environmental Protection Agency
FY – Fiscal Year (July 1 through June 30)
IUPAC – International Union of Pure and Applied Chemistry
MS4 – Municipal Separate Storm Sewer System
OPP – U.S. EPA Office of Pesticide Programs
OW – U.S. EPA Office of Water
PEAIP – Program Effectiveness Assessment and Improvement Plan
PPDC – Pesticide Program Dialogue Committee
PSC – CASQA Pesticides Subcommittee
RA – Risk assessment
SPCB – Structural Pest Control Board
SETAC – Society of Environmental Toxicology and Chemistry
SFBRWQCB – San Francisco Bay Regional Water Quality Control Board
SWAMP – California Water Boards Surface Water Ambient Monitoring Program
TMDL – Total Maximum Daily Load (regulatory plan for solving a water pollution problem)
UP3 Partnership – Urban Pesticides Pollution Prevention Partnership
USGS – U. S. Geological Survey
Water Boards – California State Water Resources Control Board together with the California Regional Water Quality Control Boards

Pesticides Subcommittee Annual Report and Effectiveness Assessment

2014-2015

California Stormwater Quality Association

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Executive Summary

To address the problems caused by pesticides in urban waterways in California, CASQA has collaborated with the Water Boards in a coordinated statewide effort, which we refer to as the Urban Pesticides Pollution Prevention (UP3) Partnership. By working with the Water Boards and other water quality organizations, we address the impacts of pesticides efficiently and proactively through the statutory authority of DPR and EPA's Office of Pesticide Programs (OPP). More than a decade of collaboration with UP3 partners, as well as EPA and DPR staff, has resulted in significant changes in pesticide regulation in the last five years. CASQA's 2014-15 activities and outcomes are described in Section 2. In terms of assessing program effectiveness in the near- and long-term, the year's highlights are as follows:

(Near term/Current problems) – Are actions being taken by State and Federal pesticides regulators and stakeholders that are expected to end recently observed pesticide-caused toxicity or exceedances of pesticide water quality objectives in surface waters receiving urban runoff?

- Due, in part, to a significant effort by CASQA and the Water Boards to prevent registration of new water polluting pesticides, the manufacturer of cyantraniliprole (a problematic replacement for pyrethroids and fipronil) withdrew its California building perimeter spray product registration application *(See Section 2.2.)*
- DPR has adopted regulations and triggered bifenthrin product label changes with additional restrictions and is monitoring effectiveness through its urban surface water monitoring and enforcement programs. *(See Section 2.2)*
- In direct response to continued communication from CASQA, DPR is addressing **fipronil** water pollution in urban areas. *(See Table 3.)*
- In direct response to continued communication from CASQA, DPR has agreed to route six pyrethroid registration applications (for momfluothrin and metofluthrin products) and all fipronil product registration applications to its surface water program for review.

(Long term/Prevent future problems) – Do pesticides regulators have an effective system in place to exercise their regulatory authorities to prevent pesticide toxicity in urban water bodies?

- As a result of requests by CASQA and the Water Boards, DPR has enhanced collaboration with the Water Boards and devoted significant resources toward urban runoff model development and coordinated monitoring. *(See Section 2.4.)*
  - This collaboration was highlighted at a November 4, 2014 workshop at the State Water Board
  - DPR's registration procedures will now specifically address California urban environments

    - DPR's urban monitoring program now includes coordination of that urban monitoring with Water Board SWAMP, has been expanded to address sediments and toxicity, and incorporates an improved prioritization process that includes degradates.
- Via the Stormwater Strategic Initiative and an "immediate implementation" project, the State Water Board is poised to direct staff to develop a statewide Water Quality Control Plan for urban-use pesticides that would streamline pesticide monitoring data evaluation, establish consistent municipal permit requirements, and include a statewide coordinated monitoring approach.
- CASQA prepared comment letters for 5 pesticide reviews, provided the Water Boards information that triggered 8 letters on 5 pesticides reviews, wrote two letters to DPR on its registration processes and a letter to California Department of Food and Agriculture on its urban pesticides use practices, and participated in numerous meetings and conference calls, focused on priority pesticides and long-term regulatory structure improvements. *(See Tables, 3, 4, and 5.)*
- Due, in part, to continued communication from CASQA, DPR has proposed to deny registration to one storm drain biocide due to concerns about efficacy, worker safety, and downstream water pollution and has agreed to route another storm drain biocide registration application to its surface water program for review.
- CASQA/UP3 provided presentations to DPR, scientific meetings, and professional associations; served on EPA, DPR, and Water Board policy and science advisory committees; and prepared and delivered public testimony. *(See Table 5.)*
- CASQA/UP3 reviewed scientific literature in order to update and prioritize the Pesticide Watch List, which it shared with pesticides regulators and with government agency and university scientists to stimulate generation of surface water monitoring and aquatic toxicity data for the highest priority pesticides. *(See Table 2.)*

In 2015-16, CASQA will undertake numerous activities to continue to address near-term pesticide concerns and seek long-term regulatory change. Future near-term and long-term tasks are identified in Section 3. Key topics include:

- The EPA OPP decision to prepare a joint risk assessment for 18-plus **pyrethroids** (anticipating public review in September 2016) covering indoor and outdoor urban as well as agricultural and mosquito abatement uses. CASQA and Partners need to be judicious in our engagement with EPA during the preparation of the risk assessment. The single risk assessment approach means that there is only one opportunity to engage and provide monitoring and toxicity data until the next review cycle (15 years later). *(See Section 2.2.)*
- Due to potential connection to bee colony collapse and new aquatic toxicity data, CASQA is tracking the neonicotinoid family of pesticides (particularly urban use of **imidacloprid** and **thiamethoxam**) that are relatively water soluble, mobile, and persistent compared to other common insecticides. *(See Section 2.1.)*

Section 1: Introduction

This report by the Pesticides Subcommittee (PSC) of the California Stormwater Quality Association (CASQA) describes CASQA's activities related to the goal of preventing pesticide pollution in urban waterways from July 2014 through June 2015. The PSC works in collaboration with the California State and Regional Water Boards (Water Boards) and other stakeholders *to bring about change in how pesticides are regulated* by the United States Environmental Protection Agency (EPA) and the California Department of Pesticide Regulation (DPR), with the goal of ensuring that currently registered pesticides do not impair urban receiving waters. This collaborative effort is referred to as the UP3 Partnership.[1]

1.1 Importance of CASQA's Efforts to Improve Pesticide Regulation

For decades now, the uses of certain pesticides in urban areas – even when applied in compliance with pesticide regulations – have adversely impacted urban water bodies. Under the Clean Water Act, when pesticides impact water bodies, local agencies may be held responsible for costly monitoring and mitigation efforts. To date, some California municipalities[2] have incurred substantial costs to comply with Total Maximum Daily Loads (TMDLs) and additional permit requirements. In the future, more municipalities throughout the state could be subject to similar requirements, as additional TMDL and Basin Plan amendments are adopted (Table 1). Meanwhile local agencies have no authority to restrict or regulate when or how pesticides are used[3] in order to proactively prevent pesticide pollution and avoid these costs.

Instead, pesticides are regulated by the EPA and DPR, which in some cases have not adequately protected urban water bodies from adverse effects. Indeed, in 2013, CASQA compiled water and sediment sampling data that bears this out: pollution from some of the newer pesticides – pyrethroids and fipronil – is now present in nearly every urbanized area in California at concentrations above the EPA chronic Aquatic Life Benchmarks for aquatic invertebrates in water.[4]

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[1] The UP3 Partnership collaborations are generally through information sharing, coordination of communications with pesticide regulators, and contributing staff time and other resources in support of the shared goal. The UP3 Partnership is an outgrowth of the UP3 *Project*, which shared a common goal. The former UP3 Project was

[2] For example, Sacramento-area municipalities spent more than $75,000 in the 2008-2013 permit term on pyrethroid pesticide monitoring alone; Riverside-area municipalities spent $617,000 from 2007 to 2013 on pyrethroid pesticide chemical and toxicity monitoring.

[3] Local agencies in California have authority over their own use of pesticides, but are pre-empted by state law from regulating pesticide use by consumers and businesses.

[4] Ruby, Armand. 2013. Review of Pyrethroid, Fipronil and Toxicity Monitoring from California Urban Watersheds. Available at https://www.casqa.org/LinkClick.aspx?fileticket=t%2btwBGMxunc%3d&tabid=194&mid=995.

Table 1. California TMDLs and Basin Plan Amendment Addressing Current-Use Pesticides in Urban Watersheds[5]

Water Board Region	Water Body	Pesticide	Status
San Francisco Bay (2)	All Bay Area Urban Creeks	All Pesticide-Related Toxicity	Adopted
Central Coast (3)	Santa Maria River Watershed	Pyrethroids, Toxicity	Adopted
Central Coast (3)	Lower Salinas River Watershed	Pyrethroids, Toxicity	In preparation
Los Angeles (4)	Marina del Rey Harbor	Copper (Marine antifouling paint)	Adopted
Los Angeles (4)	Oxnard Drain 3 (Ventura County)	Bifenthrin, Toxicity	EPA-Adopted Technical TMDL
Central Valley (5)	Nine urban creeks in Sacramento, Placer, and Sutter Counties (TMDL) Sacramento River and San Joaquin River Basins (Basin Plan Amendment)	Pyrethroids	In preparation
Central Valley (5)	Sacramento River and San Joaquin River Basins	Diuron	In preparation
Santa Ana (8)	Newport Bay	Copper (Marine antifouling paint)	In preparation
San Diego (9)	Shelter Island Yacht Basin (San Diego Bay)	Copper (Marine antifouling paint)	Adopted

For years, CASQA members have creatively tried to work around their lack of regulatory authority over pesticide use by pioneering award-winning public outreach and integrated pest management programs that encourage less-toxic alternatives. Local agencies also conduct collection events for banned pesticide products at their own cost. These "source control" efforts have established an extremely important and growing movement toward less-toxic alternatives; however, these activities fail to compensate sufficiently for the root problem: as currently implemented, pesticide regulatory actions at the state and federal levels do not adequately account for and mitigate potential water quality impacts from urban pesticide uses. With each new urban pesticide problem, local agencies face the potential of greater monitoring and source control requirements, neither of which promises to reduce pesticide-related toxicity locally or statewide.

Clearly, if we continue to conduct business as usual, more receiving waters will become impaired by urban pesticide use, and more local agencies will face increased monitoring, TMDLs, and permit requirements for pesticides. (Figure 1).

[5] Excludes TMDLs for pesticides that are not currently used in meaningful quantities in California urban areas, such as organochlorine pesticides and diazinon and chlorpyrifos.

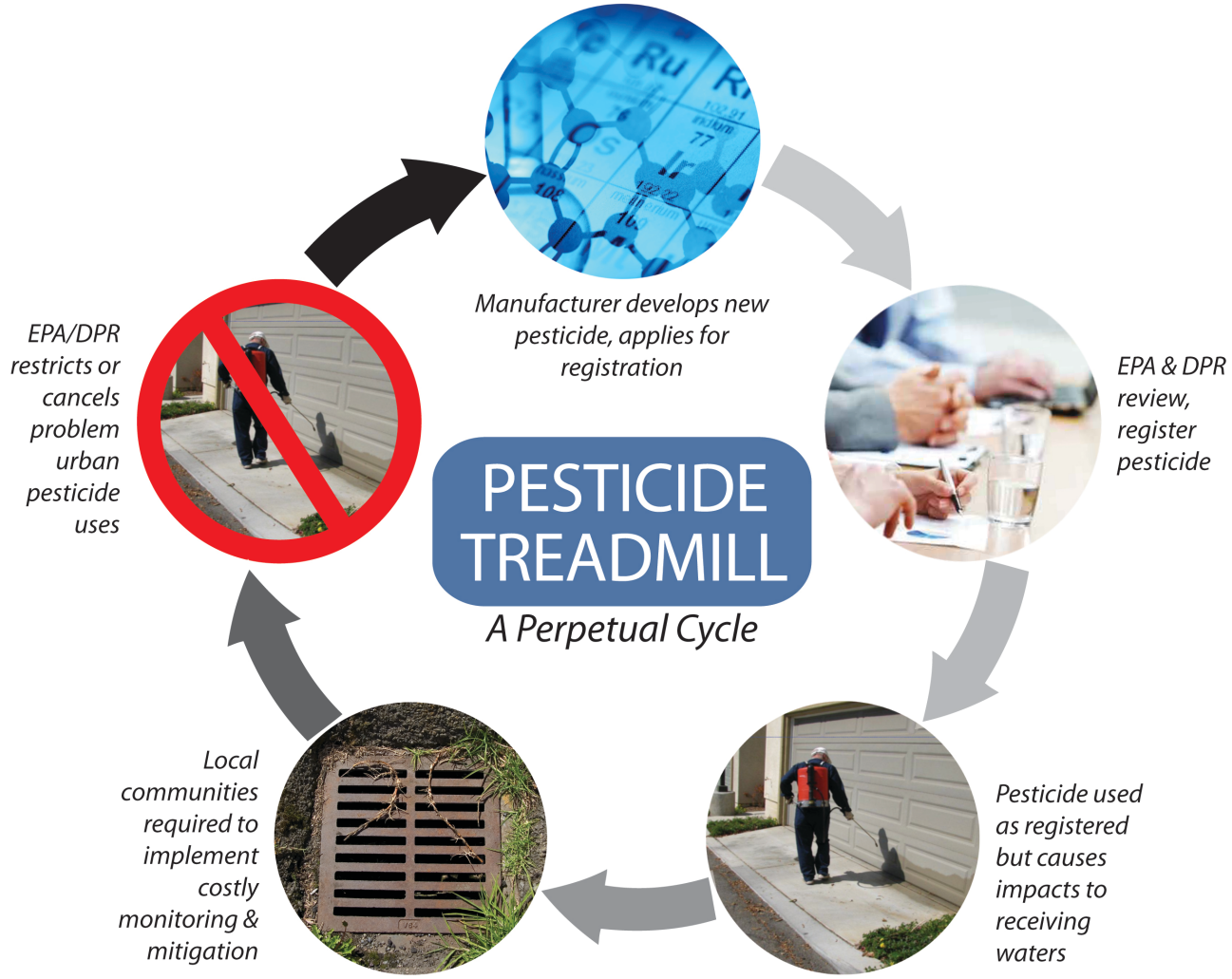


Figure 1. Our current pesticide regulatory system does not adequately protect urban waterways.[6]

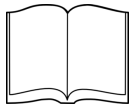
[6] Photos in Figures 1 and 4 of spraying pesticide along a garage was taken by Les Greenberg, UC Riverside.

1.2 CASQA's Goals and Application to PEAIP Management Questions

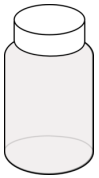
CASQA's ultimate goal in engaging in pesticide-related regulatory activities is to protect water quality by eliminating problems stemming from urban pesticide use. The CASQA Pesticides Subcommittee envisions a future when the following goals have been attained:

Goal 1: EPA and DPR will conduct effective, proactive evaluations of pesticide risks. EPA and DPR registration and registration reviews will include effective evaluations for the potential of all pesticide active ingredients and formulated products to impact urban waterways. Staff will understand all urban use patterns, and models will accurately reflect urban use patterns, the impervious nature of the urban environment, drainage systems and pathways to receiving waters. Data required of manufacturers will support proactive evaluations. Cumulative risk assessments will be conducted, especially for pesticides with similar modes of action.

Goal 2: Pesticide regulators and water quality regulators will work in coordination to protect water quality. The Water Boards, DPR, EPA's Office of Water (OW) and OPP will have a consistent definition of what comprises a water quality problem. EPA's OW and OPP will complete "harmonization" of methodologies and approaches to protect aquatic life.



Goal 3: Pesticide regulations and statutes will be used to solve pesticide-related water quality impairments resulting from the registered uses of pesticides. Rather than look to the Clean Water Act, the EPA and Water Boards will work with DPR and the EPA's Office of Pesticide Programs to manage problem pesticides without the use of the costly, slow and burdensome TMDL process.



Goal 4: Pesticide monitoring will be coordinated at the state level to support rapid response to emerging pesticide problems in urban waterways. DPR and the Water Boards will coordinate statewide monitoring to identify emerging pesticide problems in urban waterways before they become widespread and severe. Urban-specific, use-specific mitigation measures will be used to address water quality problems.

The effectiveness of CASQA's efforts toward these goals can be expressed in relation to management questions established as part of MS4s' Program Effectiveness Assessment and Improvement Plans (PEAIP)[7]. With respect to addressing urban pesticide impacts on water quality, the following two management questions, derived from CASQA's goals, are suggested for inclusion in MS4s' PEAIPs:

[7] The Phase II Small Municipal Separate Storm Sewer System (MS4) General Permit Phase II (MS4 Permit) requires the development and implementation of a Program Effectiveness Assessment and Improvement Plan (PEAIP). The first PEAIPs are to be submitted to the Regional Board with the Year 2 Annual Report in October 2015.

Question 1: (Near term/Current problems) – Are actions being taken by State and Federal pesticides regulators and stakeholders that are expected to end recently observed pesticide-caused toxicity or exceedances of pesticide water quality objectives in surface waters receiving urban runoff? (Parallel to CASQA Goal 3)

Question 2: (Long term/Prevent future problems) – Do pesticides regulators have an effective system in place to exercise their regulatory authorities to prevent pesticide toxicity in urban water bodies? (Parallel to CASQA Goal 1, as well as Goals 2 and 4)

This report is organized to answer these management questions, and is intended to serve as an annual compliance submittal for MS4s. It describes the year's status and progress, provides detail on stakeholder actions (by CASQA and others), and provides a roadmap/timeline showing the context of prior actions as well as anticipated end goal of these activities. The 2014-2015 reporting year is the first time this report is intended for use as an element of PEAIPs and future effectiveness assessment annual reporting.

Section 2: Results of CASQA 2014-2015 Efforts

To prevent urban water quality impacts from registered pesticide uses, CASQA employs a two-pronged approach:

- Address near-term regulatory concerns (Goal 3)
- Seek long-term changes in the pesticide regulatory structure (Goals 1, 2, and 4)

Given that at any given time there are dozens of pesticides with current or pending actions from the EPA or DPR, CASQA prioritizes regulatory tracking and communication efforts using the pesticide "Watch List" created by the PSC and the UP3 Partnership (Section 2.1). This prioritization aids CASQA and the UP3 Partnership in their prioritization of near-term efforts (Section 2.2).

Meanwhile, CASQA and the UP3 Partnership are also working on a parallel effort to effect long-term change in the regulatory process. By identifying the inadequacies and inefficiencies in the pesticide regulatory process, and persistently working with EPA and DPR to improve the overall system of regulating pesticides, CASQA and the UP3 are gradually achieving results (Sections 2.3 and 2.4).

2.1 Updated Pesticide Watch List

CASQA, working through the UP3 Partnership, tracks new scientific information about pesticides water pollution. In 2010, the UP3 first published its Priority Pesticide List (also called the "Watch List"), which listed pesticides used in urban areas that are harming or threatening to harm surface water quality and provided a methodology to update this list. Based on this methodology, the PSC updates this list throughout the year, reviewing new scientific literature and monitoring studies as they are published. The latest Watch List, presented in Table 2, serves as a management tool to prioritize and track pesticides used outdoors in urban areas. Several pesticides in the "Neonicotinoid" (neonic) family were added to the Watch List due to new scientific information revealing their very high chronic toxicity to sensitive aquatic organisms (see right).

New Concerns about Urban Uses of Neonics

CASQA is closely tracking the neonicotinoid family of pesticides ("neonics"). Neonics are relatively water soluble, mobile, and persistent compared to other common insecticides. These pesticides have garnered public attention due to their potential connection to bee colony collapses. Recent scientific studies suggest that further research and regulatory action may be warranted in order to prevent further impacts to pollinators. From the urban runoff perspective, the neonics of greatest interest are **imidacloprid** and **thiamethoxam**, because these two pesticides include products that can be broadcast applied to outdoor impervious surfaces, e.g., a perimeter band around buildings to control ants.

Table 2. Pesticide Watch List developed by the PSC and the UP3 Partnership updated to reflect current regulatory concerns

Priority	Basis for Priority Assignment	Pesticides		
1	Monitoring data exceeding benchmarks; linked to toxicity in surface waters; urban 303(d) listings	Pyrethroids (20 chemicals[8]) Fipronil		
2	Monitoring data approaching benchmarks; modeling predicts benchmark exceedances; very high toxicity and broadcast application on impervious surfaces; urban 303(d) listing for pesticide, degradate, or contaminant that also has non-pesticide sources	Carbaryl Chlorantraniliprole Chlorothalonil (dioxins)	Copper pesticides Creosote (PAHs) Dacthal (dioxins) Indoxacarb	Malathion Pentachlorophenol (dioxins) Polyhexamethylenebiguanide Zinc pesticides
3	Pesticide contains a Clean Water Act Priority Pollutant; 303(d) listing for pesticide, degradate, or contaminant in watershed that is not exclusively urban	Arsenic pesticides Chlorpyrifos Chromium pesticides	Diazinon Diuron Naphthenates	Simazine Silver pesticides Tributyltin Trifluralin
4	High toxicity and urban use pattern associated with water pollution; synergist for higher tier pesticide; on DPR or Central Valley Water Board priority list	Abamectin Acetamiprid (neonic) Chlorinated isocyanurates DIDAC Dithiopyr Halohydantoins Hydramethylnon	Imidacloprid (neonic) Mancozeb MGK-264 Oxadiazon Oxyfluorfen Pendimethalin Phenoxy herbicides[9]	Piperonyl butoxide Pyrethrins Spinosad/ Spinetoram Thiamethoxam (neonic) Thiophanate-methyl Triclopyr Triclosan
5	Frequent questions from members	Glyphosate Metaldehyde		
New	New pesticides that may threaten water quality depending on the urban use patterns that are approved	Chlorfenapyr Clothianidin (neonic) Cyantraniliprole	Cyclaniliprole Dinotefuran (neonic) Flupyradifurone	Novaluron Thiacloprid (neonic)
None	No tracking trigger	Most of the 1,000 existing pesticides		
Unknown	Lack of information. No systematic screening has ever been completed for urban pesticides.	Unknown		

[8] Allethrins, Bifenthrin, Cyfluthrin, Cyhalothrin, Cypermethrin, Cyphenothrin, Deltamethrin, Esfenvalerate, Etofenprox, Flumethrin, Imiprothrin, Metofluthrin, Momfluothrin, Permethrin, Prallethrin, Resmethrin, Sumethrin [d-Phenothrin], Tau-Fluvalinate, Tetramethrin, Tralomethrin.

[9] MCPA and salts, 2,4-D, 2,4-DP, MCPP, dicamba

In 2015, an additional category was added to the table—that of "New" for pesticides that may threaten water quality depending on the urban use patterns that are approved. Flupyradifurone was added to the "New" category because of its persistence, water solubility, invertebrate toxicity, and the EPA announcement of its registration for agricultural applications. Further, a pesticide that had been a Priority 2, Cyantraniliprole, was deleted from Priority 2 and moved into this "New" category, following the manufacturer's withdrawal of the building perimeter spray product registration application (see Section 2.2).

2.2. Results of Efforts Addressing Near-Term Regulatory Concerns

CASQA seeks to ensure that the EPA and Water Boards work with DPR and the EPA's Office of Pesticide Programs to manage problem pesticides that are creating near-term water quality impairments. These efforts address CASQA's Goal 3 as well as PEAIP Management Question 1 regarding observed pesticide-caused toxicity or exceedances of pesticide water quality objectives in surface waters receiving urban runoff.

Immediate pesticide concerns may arise from regulatory processes undertaken at DPR or EPA. For example, when EPA receives an application to register a new pesticide, there may be two opportunities for public comment that are noticed in the Federal Register, as depicted in green in Figure 2. EPA's process usually takes less than a year while DPR typically evaluates new pesticides or major new uses of active ingredients within 120 days. While EPA must consider water quality in all of its pesticide registration decisions, numerous pesticide registration applications are not routed by DPR for surface water review. In 2014-15, CASQA wrote one comment letter on a proposed DPR registration decision, requiring an estimated 20 hours of work. Further, CASQA and its members successfully requested that 3 products be routed by DPR for surface water review.

Figure 2. EPA's New Pesticide Registration Process

Another regulatory process, "Registration Review," depicted in Figure 3, is meant to evaluate currently registered pesticides about every 15 years, to account for new data available since initial registration. In general, it takes EPA 5 to 8 years to complete the entire process. EPA regularly updates its schedule for approximately 50 pesticides that will begin the review process in a given year.[10] In 2014-2015, CASQA

[10] See http://www.epa.gov/oppsrrd1/registration_review/schedule.htm for schedule information.

wrote comment letters for 2 registration reviews (requiring an estimated 20 hours of work) and provided information to the Water Boards, which used that information to write comment letters for 5 registration reviews.

Figure 3. EPA's Registration Review – process to review registered pesticides at a minimum of every 15 years.

DPR also has an ongoing, but informal review process (called continuous evaluation) that can address pesticides water pollution. If it needs to obtain data from manufacturers, DPR can initiate a formal action, called "Reevaluation." DPR reviews of pyrethroids and fipronil in urban runoff have occurred in response to CASQA and Water Board requests. These have involved ongoing communication with CASQA and the UP3 Partnership.

Table 3 presents a summary of recent activities and their associated results to address near-term regulatory concerns. One significant outcome was that, following extensive CASQA and Water Board communications with DPR regarding cyantraniliprole, the manufacturer withdrew its registration application for a building perimeter spray product (see right).

Manufacturer Withdraws Registration Application for Pyrethroid/Fipronil Replacement Pesticide

In June 2014, DPR proposed to approve the registration of a new insecticide—cyantraniliprole. CASQA has been tracking this pesticide due to its potential to be a problematic replacement for the pyrethroids and fipronil. One product containing this highly toxic, mobile insecticide was proposed to have the same use pattern—perimeter sprays around buildings—that has been identified as the primary source of pyrethroids and fipronil water pollution.

In July, CASQA and the California Water Boards met with the DPR Director and followed up with detailed letters providing our scientific basis for objecting to the registration of the cyantraniliprole building perimeter spray product without:

(1) Specifically examining water quality risks from the perimeter spray use
(2) Evaluating cumulative toxicity of cyantraniliprole and its degradates
(3) Identifying mitigation measures such reduced use on impervious surfaces.

August 1st, DPR announced that the manufacturer had withdrawn the application to register the building perimeter spray product. This is the first time that the CASQA/ Water Board UP3 Partnership has seen this occur.

The CASQA/Water Boards' UP3 Partnership has invested significant efforts toward preventing registration of new water polluting pesticide products. We are optimistic that this event is a landmark on California's journey towards a proactive pesticide regulatory system.

Table 3. Results of FY 2014-15 Efforts Communicating Near-Term Regulatory Concerns[11]

Regulatory Action or Concern	CASQA Efforts			Partner Support	Outcomes and notes
	Letter(s)	Call(s)	Mtg(s)		
DPR					
Pyrethroids and bifenthrin label enforcement		✓	✓		***Pending.*** DPR is actively working to obtain high compliance rates with its pyrethroids regulations. Actions include: —Working with pyrethroids manufacturers to improve their educational outreach tools. —Conducting a pilot project involving focused applicator training and inspections. —Considering increased and pyrethroids-focused compliance inspections for urban structural professional applicators. —Continuing pyrethroids monitoring through its own urban monitoring program and its partnership with the State Water Board SWAMP.
Fipronil water pollution			✓	SWRCB CVRWQCB SFBRWQCB	***Pending; partial success to date.*** DPR decided that fipronil concentrations in California urban waterways are elevated and that action is warranted. For urban runoff, DPR determined that outdoor applications by professional structural pest control applicators on impervious surfaces are the main fipronil source. DPR has concluded that reduction strategies are available. DPR has initiated discussions with registrants of the two products used outdoors by professional applicators.
Momfluothrin products registration applications				Sacramento County	***Success!*** DPR agreed to route these five registration applications to its surface water program for review.
New Metofluthrin product registration application	✓				***Success!*** DPR agreed to route this registration application to its surface water program for review.
Cyantraniliprole products proposed registration	✓	✓	✓	CVRWQCB SFBRWQCB	***Success!*** Manufacturer withdrew its registration application. (Page 11)

[11] Color coding in this table is meant to reflect the "Watch List" prioritization color coding in Table 2.

Regulatory Action or Concern	CASQA Efforts			Partner Support	Outcomes and notes
	Letter(s)	Call(s)	Mtg(s)		
Chlorpyrifos restricted material	✓				***Partial success.*** DPR finalized its regulations to make chlorpyrifos a "restricted material" in agricultural areas. This means that a permit will be required prior to any agricultural chlorpyrifos application. While this is good for water quality, the regulation is unusual in that it only covers chlorpyrifos use for production agriculture, omitting its urban uses. Remaining allowable urban use sites include non-residential structures, walkways, and patios; non-residential lawns and plants; wood; and golf courses. In response to CASQA comments, DPR explained its rationale for omitting urban chlorpyrifos uses from the regulations (no monitoring data indicating exceedances due to current very limited urban chlorpyrifos use), and committed to continuing chlorpyrifos monitoring in its urban surface water monitoring program.
Storm drain biocide (PathShield Antimicrobial Filter Media[12]) Registration Application	✓	✓			***Success!*** DPR has proposed to deny registration of the PathShield product based largely on the surface water review that was conducted at CASQA's request. DPR's surface water and other reviews indicated potential for downstream water pollution, efficacy questions, and storm drain worker safety concerns
Storm drain biocide (Smart Sponge Plus[13]) registration application	✓			Sacramento County	***Success!*** DPR agreed to route this registration application to its surface water program for review.
Registration applications – all storm drain products – request automatic routing for surface water review	✓				***Pending***
DPR Registration Branch PRDMS project Stakeholder Advisory Committee	✓				***Limited success.*** While DPR will take public input, DPR will not have CASQA on advisory committee, which is only for pesticide registrants.
Public notice and information access for DPR registration decisions	✓				***No success.*** Negative response from DPR to all requests.

[12] Active ingredient is 3-(Trihydroxysilyl) propyl dimethyl octadecyl ammonium chloride.
[13] Active ingredient is 1-Octadecanaminium,N,N,dimethyl-N-(3-(trimethoxysilyl) propyl)-chloride.

Regulatory Action or Concern	CASQA Efforts			Partner Support	Results and notes
	Letter(s)	Call(s)	Mtg(s)		
EPA					
Pyrethroids Registration Review and the updated process and approach		✓			***Pending.*** In February, Water Board and CASQA representatives had a call with EPA to learn about and discuss OPP's special approach for its current pyrethroids review. Instead of completing 18 separate water quality risk assessments for 18 pyrethroids, OPP will prepare a joint risk assessment that it anticipates releasing for public review in September 2016. Between now and next summer, we anticipate opportunities to share information and insights with OPP to assist them with developing a scientifically sound, complete, straightforward risk assessment that provides a solid basis for identification of specific risk management measures. (See details on page 17.)
Metofluthrin Registration Review Proposed Decision to Terminate Review	✓	✓		SFBRWQCB	CASQA and the Water Boards provided input to OPP regarding their proposal to terminate their review. In September 2014 this action was finalized. Communication with OPP indicated that it seriously considered CASQA's comments in their decision process, but did not complete a fully scientific, quantitative review of the risks of the limited outdoor uses of this pyrethroid.
MCPP Registration Review Work Plan				CVRWQCB SFBRWQCB	***Mixed.*** OPP did not require manufacturers to fill toxicity data gaps, instead relying on qualitative extrapolations from other species. OPP is trying to develop methods to assess cumulative risks of phenoxy herbicides in the context of its work on endangered species consultations.
Momfluorothrin Registration Application	✓			SFBRWQCB	***Partial success***. In Fall 2013, the UP3 Partnership identified this registration application, which caused CASQA and the SF Bay Water Board to send letters to OPP requesting a thorough review of the water quality risks of this new pyrethroid in light of the extensive pyrethroid water pollution in California. In response to these requests, OPP completed a more thorough review of the pesticide than has previously been conducted for some other new urban pesticides.
Creosote Registration Review				SFBRWQCB	***Pending***.
Zinc pyrithione Registration Review Work Plan		✓		LARWQCB SFBRWQCB	***Mixed.*** OPP promised to look at copper/zinc pyrithione cumulative toxicity, but its work plan was not modified to include specific measures to conduct the evaluation, nor to require the data necessary for the requested evaluation (e.g., data on copper pyrithione formation and toxicity).

Regulatory Action or Concern	CASQA Efforts			Partner Support	Results and notes
	Letter(s)	Call(s)	Mtg(s)		
Copper sulfate antimicrobial registration application (2013/14 letter)	✓			SFBRWQCB	***Unknown outcome.*** OPP does not make public its environmental risk assessments or decision documents on applications to allow new uses of existing pesticides. The product was approved in 2014. No information is available to assess whether CASQA and Water Board comments affected the OPP review or the approved uses of the product.
Silver/Zinc marine antifouling paint registration application (2013/14 letters)				State Board and multiple regions	***Unknown outcome.*** Because OPP documents related to this registration decision have not been made public (see above), the effect of comments is cannot be determined.
Triclopyr Registration Review Work Plan	✓				***Pending***. Triclopyr is a persistent herbicide that is among the most commonly detected pesticides in urban watersheds and is a DPR urban monitoring priority. In recent DPR monitoring, triclopyr was detected in 40% (Sacramento County) to 80% (Orange County) of samples. The draft EPA work plan appeared to be unaware of available data from DPR. The CASQA letter drew attention to the available DPR data as well as the issue of persistent toxic degradates.
MCPA Registration Review Work Plan (2013/14 letter)				CVRWQCB	***Partial success.*** Multiple phenoxy herbicides commonly occur in California watersheds. OPP does not have a method to assess these cumulative risks, but, due to endangered species consultation requirements, development of cumulative risk assessment methods is a priority.
Thiophanate methyl and Carbendazim Registration Review Work Plan (2013/14 letter)				CVRWQCB	***Success!*** In final work plan, OPP maintained important, discretionary requirements for outdoor building material leaching and sediment toxicity tests.
PPDC Membership – Support for CASQA's member	✓			SFBRWQCB	***Negative outcome.*** No local water quality agency representative will be on the PPDC. Another opportunity for appointment applications will occur in 2017.
State Water Board					
Pyrethroids (and other pesticides) as part of the state "contaminants of emerging concern" (CEC) project			✓		***Success!*** The State Water Board has been working on a special project to examine CECs in California urban discharges and surface waters. Until this past FY, the project considered pesticides as "CECs." This designation was pursued without linkage to DPR and in a manner that was managerially and scientifically disconnected from the Water Board SWAMP/DPR monitoring collaboration. The State Water Board has since removed pesticides from the CEC project.

Regulatory Action or Concern	CASQA Efforts			Partner Support	Results and notes
	Letter(s)	Call(s)	Mtg(s)		
California Department of Food and Agriculture					
Invasive species control program Environmental Impact Report	✓			SFBRWQCB	***Negative outcome***. Although CDFA uses an integrated pest management (IPM) approach, its invasive species control programs apply many pesticides on the Watch List, such as pyrethroids (including bifenthrin), carbaryl, malathion, imidacloprid, and naled. CDFA was not positive or responsive to CASQA and Water Board comments. CDFA backed off of language indicating that it would not use aerial spraying in urban areas—this commitment was narrowed to residential areas. The EIR is currently in litigation by environmental organizations; water quality is one of the litigation topics.

The many positive outcomes in Table 3 reflect the success of CASQA's teamwork in the UP3 Partnership. Some of this work occurs during formal public comment periods. To accomplish this, CASQA monitors the Federal Register and DPR's website for notices of regulatory actions related to new pesticide registrations and registration reviews. CASQA watches for pesticides that appear to have any of the following characteristics: proposed urban, outdoor uses with direct pathways for discharge to storm drains, high aquatic toxicity, or containing a priority pollutant. Note that participating in these regulatory processes can take many years to complete.

Top tier pesticides were the current push for this year, and CASQA concentrated efforts on educating and collaborating with the State Board and DPR on the big picture (next section). Fewer letters were written than in past years, in part because the EPA review schedule did not include any public comment opportunities on the highest priority pesticides.

As can be seen in Table 3, CASQA has had considerable success in working with DPR and the Water Boards. Our mixed results with EPA indicate that there are opportunities for further communications and discussions. **A major challenge in the upcoming fiscal year will be that of supporting EPA's OPP with their pyrethroid family risk assessment** (see details on the next page).

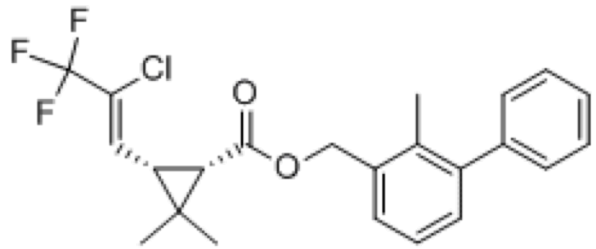
Eighteen-plus Pyrethroids to Be Combined into Single Water Quality Risk Assessment

The EPA OPP has decided to change the approach to their pyrethroids review. Instead of completing separate water quality risk assessments for each of 18-plus pyrethroids, OPP will prepare a joint risk assessment that it anticipates releasing for public review in September 2016.

There are opportunities and challenges to such an effort. On the one hand, OPP recognizes that pyrethroids are causing aquatic toxicity and that risk management measures must be implemented. The risk assessment will cover indoor and outdoor urban as well as agricultural and mosquito abatement uses. On the other hand, CASQA and Partners need to be judicious in our engagement with EPA during the preparation of the risk assessment. The single risk assessment approach means that there is only one opportunity to engage and provide monitoring and toxicity data until the next review cycle, approximately 15 years later.

Meanwhile, OPP does not want this process to be overly complex so they are seeking ways to simplify both the risk assessment and the negotiations with manufacturers on risk management measures. FIFRA is a risk-benefit law that requires OPP to consider more than water pollution when making its decisions. OPP is keenly aware that their regulations shift users to other pesticides. They signaled that they see pyrethroids as potentially "less bad" than most other insecticides.

Although DPR has adopted regulations that may end most urban pyrethroids water pollution, monitoring data have yet to demonstrate reductions. Because DPR's authorities over non-professional (consumer) products are difficult to use, we need EPA to prepare to implement any measures necessary for consumer products. Further, special management measures are needed for bifenthrin, which has grown in the non-professional market and which is the main contributor to aquatic toxicity. Because EPA is not going to ban pyrethroids, effective and well-designed urban risk assessment methods and mitigation measures will be necessary.



Bifenthrin, among the 18-plus pyrethroids in the combined risk assessment, has grown in the marketplace and is the main contributor to aquatic toxicity.

2.3 Long-Term Change in the Pesticides Regulatory Structure

CASQA is actively working towards a future in which the pesticide regulatory structure is used proactively to restrict pesticide uses that have the potential to cause urban water quality problems (Figure 4). This section provides answers to PEAIP Management Question 2: "Do pesticides regulators have an effective system in place to exercise their regulatory authorities to prevent pesticide toxicity in urban water bodies?"

There are several processes currently under way at both EPA and DPR that will move us closer to that future. Many of these processes were prompted by the persistent work of CASQA and the UP3 Partnership to educate EPA and DPR staff on the problems with current approaches.

More than a decade of collaboration with UP3 partners, as well as EPA and DPR staff, has resulted in significant changes in pesticide regulation in the last five years. Table 4 presents a summary of 2014-15 major actions undertaken and outcomes achieved toward long-term changes in how pesticides are regulated.

Figure 4. CASQA is actively engaged with state and federal regulators in an effort to develop an effective regulatory system to identify whether urban uses of a pesticide pose a threat to water quality and then restrict or disallow those uses proactively so that water quality impacts are avoided.

Table 4. Latest Outcomes and Next Steps Regarding Long-Term Regulatory Change

Goal	Agency	Topics Influenced	Latest (2014/15) Outcomes	Remaining Issues to Achieve CASQA Goals
1 – Effective, Proactive Evaluations of Pesticide Risks	DPR	Pesticide registration application routing for surface water evaluations	DPR continued to route registration applications for surface water review in response to emailed or written requests by CASQA/UP3.	Surface water evaluation automatically conducted for all outdoor, uncontained pesticides. More transparent DPR registration notices. Aquatic toxicity and environmental fate data requirements sufficient to support quantitative evaluation of pesticides and degradates in water and sediment. Regulatory authority for outdoor pesticide-impregnated materials.
		Pesticide Registration Surface Water Evaluation	DPR added an urban module that explicitly addresses impervious surfaces and other unique features of California urban environments.[14]	Methodology modifications to address stable, toxic degradates, model the full range of outdoor urban pesticide applications, and improve urban runoff modeling accuracy (see below).
		Urban Runoff Modeling	DPR published a California urban modeling scenario to use with existing EPA models and continued working on more detailed urban runoff modeling.	More accurate urban runoff modeling of all outdoor urban pesticide applications through the full life cycle of the pesticide and its environmentally relevant degradates. Consideration of product formulation and degradates.
		Chemical analysis methods	DPR required chemical analysis methods for some new pesticides and continued work with state laboratories on new methods to support monitoring priorities.	Chemical analysis methods suitable for commercial laboratories measuring environmental samples for all currently registered UP3 priority pesticides and their stable degradates for which commercial lab methods are not available.
	EPA	Pesticide environmental fate & aquatic toxicity data requirements	OPP expanded sediment toxicity testing, used predictive methods to justify important new requirements for environmental fate and toxicity data for key degradates, and required salt water aquatic toxicity data more often.	Establish systems to require all data necessary to establish water quality criteria and protective levels for sediments, potentially through new water quality criteria development methodologies based on limited data sets or computational methods.

[14] Luo, Y. (2014). *Methodology for Evaluating Pesticides for Surface Water Protection III. Module for Urban Scenarios.* Calif. Department of Pesticide Regulation, Sacramento CA.

Goal	Agency	Topics Influenced	Latest (2014/15) Outcomes	Remaining Issues to Achieve CASQA Goals
	EPA	Urban Runoff Modeling	No changes.	In the short-term, use the DPR California scenario when modeling urban runoff, and integrate all of the pathways by which a pesticide can reach MS4s into pesticide reviews for pesticides other than antimicrobials. In the long term, more accurately model all outdoor urban pesticide applications through the full life cycle of the pesticide and its environmentally relevant degradates.
		Effects Assessment	OPP started to include sediments in risk assessments on a routine basis.	Use the criteria OW uses for identifying surface water impairment as significance standards in pesticide environmental risk assessments.
		Risk Management Decisions	No changes.	Make ensuring Clean Water Act compliance a fundamental goal of OPP risk management decisions. To support this approach, include water quality compliance costs in EPA's cost-benefit analyses.
2 – Coordination Between Pesticide Regulators and Water Quality Regulators	DPR & Water Boards	Effects assessment	DPR determined that exceedances of OPP benchmarks warrant mitigation responses.	Since some benchmarks are higher than water quality criteria, agreement is needed among DPR, Water Boards, and EPA Office of Water on criteria for identifying surface water impairment requiring mitigation by pesticides regulators.
		Pesticide Management requirements in Permits	Water Boards are poised to initiate development of a statewide Pesticides Plan that recognizes local agencies' limitations, and acknowledges DPR and EPA roles.	Adoption of a State Water Board Pesticides Plan and updated formal framework for DPR & Water Boards to work together on surface water pollution ("Management Agency Agreement") that recognize the need for DPR and EPA to take the lead in addressing pesticides water pollution and provide reasonable responsibilities for MS4s.
		Pesticide TMDLs.	Both adopted Santa Maria River pyrethroids TMDL and proposed Central Valley pyrethroids TMDL recognize that DPR and EPA should be lead in addressing pesticides.	Ensure that the Central Valley Pyrethroids TMDL and future urban pesticides TMDLs and permits continue to recognize the need for DPR and EPA to take the lead in addressing pesticide water pollution and provide reasonable responsibilities for MS4s.
	EPA	Effects Assessment	The nearly completed Office of Water-OPP Common Effects Assessment project remained stalled.	Complete and implement common effects assessment methodology, integrated into water quality criteria methodology modification process being initiated by OW. Modify OPP and OW procedures to provide for consistent time frames for water quality assessments.

Goal	Agency	Topics Influenced	Latest (2014/15) Outcomes	Remaining Issues to Achieve CASQA Goals
	EPA	Water Quality Data for Pesticide Reviews	DPR started forwarding data in response to OPP quarterly data requests.	OPP routinely obtains the latest scientific literature when scoping and conducting pesticides water quality risk assessments. Non-burdensome systems to ensure that California monitoring data gets into DPR and/or CEDEN databases in a timely manner.
3 – Use of Regulations and Statutes to Solve Pesticide-Related Impairments	DPR	Pyrethroids	DPR continued monitoring and other work to evaluate the effectiveness and level of compliance with the regulations.	Increased enforcement and follow up actions as necessary to achieve water quality improvements and eventually end pyrethroids-caused toxicity in California urban watersheds.
		Fipronil	DPR has decided to take action to reduce fipronil in urban runoff.	Implementation of any mitigation actions necessary to reduce concentrations of fipronil and degradates below benchmarks / toxic concentrations in in California urban watersheds.
	EPA	Pyrethroids and Fipronil Registration Reviews	EPA is initiating its single risk assessment for all pyrethroids	EPA implementation of actions to mitigate risks associated with products not readily regulated by DPR (consumer products, impregnated materials). Clear label language consistent with DPR regulations and DPR's agreement with bifenthrin manufacturers for extra mitigation measures.
4 – Coordinated State Monitoring to Support Response to Emerging Problems	DPR & Water Boards	Coordinated Pesticides Monitoring in Urban Watersheds.	DPR clarified that its urban monitoring program is effectively permanent (subject to annual work plans). The State Water Board and DPR continued coordinated urban monitoring for pyrethroids and fipronil. The scope for the anticipated State Water Board Pesticides Plan includes coordinating pesticide/toxicity monitoring.	Full coordination of California's pesticides/toxicity monitoring programs at DPR and the Water Boards and direct linkage of these programs with reasonable MS4 pesticides monitoring requirements.

Table 5 presents the communication, educational outreach, and advisory efforts of the past year. In the next year, CASQA will continue to educate diverse audiences on nexus of urban pesticide regulation and water quality and the key scientific issues involved in identifying, addressing, and preventing pesticides water pollution. (Typically, PSC has more than twice as many presentation invitations and opportunities than its resources allow it to accept.) Budget limitations have greatly limited in-person meetings with OPP.

Table 5. Communication, Education, and Advisory Efforts to Support CASQA's Goals

Agency or Conference	Latest Outcomes
DPR's Pest Management Advisory Committee (PMAC)	***Success!*** Participation on the PMAC has resulted in continued focus by DPR on urban pest management and water quality issues and generated funding for urban integrated pest management programs. DPR's Pest Management Alliance Grants, for which the PMAC reviews proposals, continues to include urban IPM as an eligible category. In the 14/15 cycle, three of the nine full proposals were urban IPM projects; final funding decisions were not made by DPR by the end of 14/15. Presentations were made to PMAC for current funded urban projects nearing completion, entitled "Expanding IPM Education to Southern California Spanish-Speaking Landscapers" and "IPM Training Resources for California Pest Management Professionals Working in Early Care and Education Facilities."
US EPA's advisory committee, Pesticide Program Dialogue Committee (PPDC)	***Promising.*** PSC attended PPDC in January 2015 (teleconference) and May 2014. Participation on PPDC and face-to-face meetings with OPP staff and management has helped increase OPP's focus on urban pest management and water quality. PSC met with OPP staff to discuss progress in OW/OPP common effects methodology. PSC participated in Integrated Pest Management workgroup, which made significant progress in promoting school IPM. The prior PSC member of the PPDC was not reappointed for the remainder of 2015 due to term limits. Another PSC member has applied for appointment, but EPA has not yet announced its appointments to OPP's sole external stakeholder advisory committee.
California Structural Pest Control Board (SPCB)	***Success!*** A PSC member is an appointed member of the SPCB. The SPCB recognized the potential for excessive pesticide application to impact water quality. An appointed stakeholder committee developed recommendations to the full SPCB for promulgating regulation changes in continuing education requirements aimed at increasing IPM adoption and reducing water quality impacts by licensees. Full SPCB will consider recommendations during 15/16. If adopted, SPCB will commence rulemaking process.
University of California Statewide IPM (UCIPM)	***Success!*** A PSC member was appointed to UCIPM's Strategic Planning Committee. Resulting final draft strategic plan includes key actions to "expand efforts to reach urban IPM clientele." PSC member was appointed to selection committee for new UCIPM Director. Next steps to include meeting with incoming UCIPM director and Urban Associate Director to ensure awareness of and continued attention to CASQA issues regarding urban pesticides and pest management issues.
ACS/IUPAC Conference (SF)	Presentation "Developing Aquatic Risk Mitigation Strategies for Urban Environments" (Aug. 11) Poster - "Sources of Pesticides in Urban Runoff and Wastewater Discharges", co-author, Patti TenBrook EPA Region 9 (Aug. 11)
CASQA	Presentation at conference to educate members: "Statewide Alternative Compliance Approach for Pesticides – Coming Soon to Your Permit?" (Sept. 17)
SWRCB	November 4th workshop on urban pesticides water pollution and collaborations with DPR (see Section 2.4)
SETAC	Presentation and scientific poster: "Fipronil Water Pollution and Its Sources" (Nov. 10)
ACS and SETAC national meetings	Held informal meetings with EPA, DPR, and pesticide manufacturers, obtained scientific information and communicate CASQA priorities. (Aug. 10-14; Nov. 9-13)

As presented in Tables 4 and 5, CASQA has been actively involved in guiding pesticide regulations in order to protect urban water quality. While we have indeed witnessed some progress towards our four management goals, there are numerous gaps and barriers that remain. Figure 5 seeks to present CASQA's perception of the regulatory situation at the state and federal level, relative to each of CASQA's long term goals. The PSC has witnessed great improvements in a collaborative approach to protect urban water quality, particularly at the state level. It appears that the primary challenges and opportunities for success lie at the federal level, facilitating communication between OPP and OW to dovetail each of their efforts into the coordinated efforts within the state.

Figure 5. CASQA's Assessment of Recent Progress and Remaining Gaps Relative to Ultimate Goals

CASQA's Long-Term Goals	Progress Assessment	Assessment Basis
	Maximum possible: 5 drops	
DPR and State Programs		
1. Effective proactive evaluations	4 drops	*DPR is utilizing effective WQ modeling and screening mechanisms as part of its registration process. The overall process has a high likelihood of identifying problem chemicals in advance of registration.*
2. Coordinated regulatory bodies	3 drops	*This is a composite of considerable progress by DPR and somewhat less from the Water Boards. Some Water Boards have recognized in regulatory documents (TMDLs, permits) the need to coordinate with DPR on pesticide impacts.*
3. Effective use of regulations and statutes	4 drops	*State Water Board staff has proposed in draft Stormwater Strategic Initiative that a statewide Pesticide Plan incorporate the principle of reliance on DPR and OPP authorities as the primary mechanisms of addressing pesticide impacts. In response to pyrethroids, DPR has established surface water protection regulations and is actively evaluating compliance and effectiveness. DPR is responding in a timely manner to identified fipronil issues.*
4. Coordinated state monitoring	4 drops	*DPR established statewide surface water surveillance monitoring for timely detection of water quality problems, has begun coordination with State Water Board. Some Water Board regulatory instruments beginning to allow for coordinated representative pesticide monitoring by permittees.*
EPA OPP and OW Programs		
1. Effective proactive evaluations	2 drops	*OPP has improved some of its registration processes (risk assessments, data requirements) for individual chemicals, but needs to make these improvements more consistent for all urban use chemicals, and for all divisions. OPP should adopt better modeling, similar to what DPR has developed. In making final registration decisions, OPP does not consistently give adequate weight to identified urban water quality impacts*
2. Coordinated regulatory bodies	2 drops	*OPP has made significant progress with OW on common effects methodology (evaluation of toxic effects), but work on this has stalled for the last several years.*
3. Effective use of regulations and statutes	3 drops	*OPP has accelerated and coordinated registration review for pyrethroids, although it has not yet committed to utilizing the best evaluation methods for this entire class, as recommended by CASQA.*

LEGEND

The number of drops, out of 5 possible, is intended as a *qualitative* representation of our overall perception of progress in the regulation of pesticides, relative to CASQA's long-term goals.

2.4 Highlight – Successful Collaborations Between Water Boards and DPR

The most significant changes in pesticide regulation have been with DPR and their coordination with the Water Boards, CASQA, and the UP3 Partnership. These changes have been so noteworthy that on November 4, 2014, the State Water Board held a workshop to review collaboration with DPR toward resolving and preventing adverse water quality impacts associated with urban-use pesticides. The workshop included presentations from the State Board staff, a CASQA representative, and the Director of DPR. An excerpt of the State Board Staff Report (at right) highlights the actions and progress collaborating with DPR in recent years.

Workshop Outcome

At the conclusion of the workshop, the State Water Board directed staff to work toward development of statewide Water Quality Control Plan for urban-use pesticides that would:

- streamline pesticide monitoring data evaluation and consistently respond to urban pesticide impairment listings throughout the state,
- establish consistent municipal permit requirements, and
- include a statewide coordinated monitoring approach.

Stormwater Strategic Initiative

Following the State Water Board direction, staff incorporated into the draft State Water Board

STATE WATER BOARD
BOARD MEETING
Tuesday, November 4, 2014 - 9:00 a.m.
Coastal Hearing Room – Second Floor
Joe Serna Jr. - Cal/EPA Building
1001 I Street, Sacramento

Below are excerpts from the State Board Staff Report for the November 4, 2014 meeting, highlighting collaborations with DPR:

"…the actions and progress at DPR are particularly noteworthy… CDPR promulgated regulations in 2012 to prevent surface water contamination by pyrethroid pesticides applied outdoors to structural, residential, industrial, and institutional sites. These regulations limit pesticide application methods on horizontal impervious surfaces to spot treatments, crack and crevice treatments, and pin stream treatments of one-inch wide or less, and prohibit exposed applications during precipitation events. The resulting reduced and mitigated applications should significantly reduce wash off of pyrethroids into urban water bodies. DPR has also recently improved its methodology and procedures for reviewing new pesticide product data submitted for registration to provide more focus on potential impacts of pesticide on surface water quality.

Our collaborative strategy also includes coordination of monitoring to determine presence and trends of toxicity and pesticides of concern. DPR's Surface Water Protection Program monitors urban pesticide runoff at several long-term monitoring sites in northern and southern California, and our Stream Pollution Trends Program, part of our Surface Water Ambient Monitoring Program, monitors trends in sediment toxicity and pesticides in sediments in rivers and streams throughout the State. We also plan to include and account for pesticides monitoring by municipalities in our strategy. These coordinated monitoring programs will be used to assess the effectiveness of DPR's new surface water protection regulations and to evaluate the need for other urban pesticides management actions to protect water quality."

Stormwater Strategic Initiative an "immediate implementation" project, entitled "Urban Pesticide Reduction." The project:

- provides for development of a framework for urban pesticides pollution control,
- recognizes that DPR and US EPA OPP are the lead responders to pesticide water pollution,
- provides for development of a standard approach for appropriate and reasonable pesticide control requirements for municipalities, and
- envisions a coordinated pesticides monitoring approach for California's urban watersheds that would be more efficient and effective than today's monitoring patchwork.

This project requires a commitment of Water Board staff time to see it through. The recommended resource allocation for this project (2 staffers for two years) appears appropriate. This project would generate a substantial net cost savings for the Water Boards by avoiding future 303(d) listings and TMDLs. This project is important because it will implement multiple urban pesticides TMDLs (both adopted and in development). It is *essential* for response to widespread aquatic toxicity associated with currently used pesticides that the Water Boards have found in California urban watersheds.[15] Further, it provides an essential companion framework for the substantial investments made by DPR in urban pesticides monitoring, management, and prevention over the last few years.

[15] Phillips BM, Anderson BS, Siegler K, Voorhees J, Tadesse D, Webber L, Breuer, R. 2014. *Trends in Chemical Contamination, Toxicity and Land Use in California Watersheds: Stream Pollution Trends (SPoT) Monitoring Program. Third Report - Five-Year Trends 2008-2012*. California State Water Resources Control Board, Sacramento, CA.

Section 3: CASQA's Approach Looking Ahead

3.1 CASQA's Fundamental Approach

At any given time, EPA and DPR may be in the process of evaluating and registering various pesticides for urban use. To address near-term concerns that may arise out of these ongoing pesticide regulatory processes, CASQA and the UP3 Partnership continuously track and engage in EPA and DPR activities. Typically, these efforts press for changes in an individual product's registration or request that regulators obtain more data from manufacturers. CASQA and the UP3 Partnership are also working on a parallel effort to effect long-term change in the regulatory process. The types of activities that CASQA and the UP3 Partnership engage in are presented Table 6. Many of these activities work to address both near-term concerns and the longer-term goal of systemic regulatory change.

Table 6. Types of Activities Undertaken to Address Immediate Pesticide Concerns and Long-term Regulatory Change

Activity		Purpose	Level of Effort
Regulatory Tracking	Track Federal Register notices	Identify regulatory actions that may require review.	Daily review; analyze EPA's scientific work and provide notification to CASQA members and partners as needed.
	Track DPR notices of evaluations and decisions	Identify potential problems with current DPR evaluation or registration plans other regulations, procedures & policies.	Weekly review; obtain water quality assessments from DPR through public record requests; analyze and provide notification to CASQA members and partners as needed.
	Track activities at the Water Boards	Identify opportunities for improvements in TMDLs, Basin Plan Amendments, and permits.	Often weekly phone calls with Water Board staff; weekly review of noticed proceedings; review scientific information.
	Review regulatory actions, guidance documents, and work plans	Identify potential problems with current EPA evaluation or registration plans, other regulations, procedures, and policies.	According to need as identified by tracking activities (average of 4 per month).
Regulatory Communications	Briefing phone calls, informal in-person meetings, teleconference meetings, and emails with EPA and DPR	Information sharing about immediate issues or ongoing efforts; educate EPA and DPR about issues confronting water quality community. Provide early communication on upcoming proceedings that help reduce the need for time-intensive letters.	As needed, but often several times per week. In-person meetings with DPR and EPA Region 9 approximately quarterly and OPP about 2-3 times per year (due to budget limitations, these are always in association with advisory committee meetings and scientific conferences).
	Convene formal meetings, write letters and track responses to letters	Ensure current pesticide evaluation or registration process addresses potential water quality concerns, and take advantage of opportunities to formally suggest solutions to shift regulatory process in the future. Request and maintain communication on mitigation actions addressing highest priority pesticides.	Typically a dozen or so pesticides annually that could pose threats to water quality if EPA or DPR does not initiate certain procedures. Letters vary in length, but often are many pages and require many hours to write. As dockets are updated, review responses to comments and identify next opportunities. 4-6 meetings per year with DPR on mitigation actions.

Activity		Purpose	Level of Effort
Advisory	Serve on EPA, DPR, and Water Board policy and scientific advisory committees	Provide information and identify data needs and collaboration opportunities toward development of constructive approaches for managing pesticides.	Two to six meetings per committee per year. The PSC is currently represented on both EPA's and DPR's external advisory committees and has sporadic representation on water board panels related to pesticides.
Educational	Presentations to EPA, DPR, Water Board, CASQA members, pesticide manufacturers, water quality researchers, and other collaborators	Educate EPA, DPR, Water Board, and CASQA member staff about the problems with existing pesticide regulatory process, encourage change, report on achievements. Influence research and monitoring programs. Inform development of new pesticides by manufacturers and selection of pesticides by professional users.	As many as a dozen opportunities to present at water quality, pesticides and chemical conferences nationally. Additional 8-10 opportunities per year for state and regional events. Preparation of presentations and coordination with water quality community can take as much as 40 hours per opportunity.
	Developing and delivering public testimony	Educate Water Board members about the problems with existing pesticide regulatory process, encourage change, report on achievements.	Two to three times per year. Preparation and coordination can take as much as 40 hours per opportunity.
Monitoring	Track urban runoff monitoring and pesticide-related research	Encourage coordination with Water Board/MS4 data needs and priorities; stimulate academic, government, or private development of analytical and toxicity identification methods to address anticipated MS4 needs; share information to improve decisions.	About 10 important publications per month and a dozen meetings per year.
	Data analysis of DPR/SWAMP/USGS/MS4 monitoring, pesticide use data, and information from scientific literature	Summarize data to educate CASQA members and water quality community, Water Boards, DPR, and EPA.	Detailed analysis is infrequent because finding, compiling, and analyzing data requires very high level of effort and funding. CASQA undertook a detailed monitoring summary in 2013. Report is available at www.casqa.org. CASQA/UP3 summarized information on fipronil water pollution and its sources in 2014 in a presentation and scientific poster.

CASQA looks forward to working with our Partners to continue towards proactive management to protect water quality.

3.2 FY 2015 Priorities and Key Action Items

In the coming year, CASQA will undertake numerous activities to both address near-term pesticide concerns and seek long-term regulatory change. Based on our recent success with our 2013 and 2014 focus on DPR, the plan for 2015-16 is to focus more on US EPA Office of Pesticide Program (OPP), where we have actions we need to push forward (OPP/OW common effects assessment methodology, more accurate urban modeling, other process problems), and where we expect actions on our highest priority pesticides. Some of this work will take advantage of tools developed by DPR. A second focus for 2015-16 is Water Board statewide pesticides planning leading to an envisioned statewide Plan amendment, which we expect to ramp up as the year progresses.

FY 2015 is shaping up to be a busy year for the assessment of high priority urban pesticides. In the next 12 to 18 months, Risk Assessments from OPP are anticipated for:

- ✓ 18+ pyrethroids
- ✓ fipronil
- ✓ imidacloprid

For each pesticide, all available toxicity and monitoring data need to be submitted to EPA prior to completion of the RA. Further, the comment periods for these key pollutants may overlap, requiring significant review resources.

Priorities for work the next year with OPP risk assessors will involve a coordinated effort to achieve accurate urban runoff risk assessments. Thus CASQA and Partners will need to:

- Obtain and share data (e.g., toxicity test results, urban use pattern details, monitoring data, our regulatory context).
- Ensure OPP has sufficiently accurate modeling scenarios to identify and model all use patterns that could cause water pollution.

CASQA's current priority activities are as follows:

(1) Continue collaboration with DPR to address near-term regulatory concerns, while seeking OPP and OW actions to reduce inconsistencies:

- Obtain DPR action on fipronil water pollution
- Ensure DPR enforces mitigation measures for pyrethroids and adopts additional measures if necessary
- Ensure the state conducts surveillance monitoring to evaluate pyrethroids (and fipronil) mitigation effectiveness
- Encourage EPA to develop capacity to implement pyrethroids and fipronil mitigation measures, in case necessary mitigation cannot be implemented entirely by DPR

(2) Seek long-term changes in the pesticide regulatory structure:

- Seek procedure changes such that EPA and DPR avoid approving new pesticides that cause urban water pollutions
- Encourage EPA to develop robust urban surface water risk assessment procedures for pesticide reviews
    - Focus on priority pesticides, particularly the pyrethroid family, fipronil, and imidacloprid, for which there will be public input opportunities

    - Focus on completing effort to improve OPP urban runoff modeling procedures and renew efforts regarding consistency with OW regarding effects assessment and risk assessment timeframes
- Work toward obtaining a statewide management approach for pesticides that is adopted by the State Water Board, and formally recognizes the need to rely on DPR and OPP authority as the primary means to prevent and mitigate water quality impacts by pesticides.
- Seek restructuring of California's urban surface water pesticides monitoring to increase its effectiveness and improve coordination.

Table 7 presents upcoming regulatory action items that are likely to proceed in the coming year. Many items will require letters as well as other communications with EPA, DPR, and the Water Boards. CASQA will continue to coordinate with the Water Boards through the UP3 Partnership to take advantage of efficiencies, increase effectiveness, and ensure that the water quality community has a consistent message. In addition to the action items in Table 7, CASQA will also continue the following activities in FY 2015:

- Education and information sharing with CASQA and Partner[16] research and monitoring scientists about priority needs, integration, and data interpretation
- Track major relevant scientific studies; review relevant scientific literature, monitoring data, and government reports; and maintain database of key references
- Serve on EPA, DPR, and Water Board policy and scientific advisory panels
- Peer review EPA, DPR, and Partner work plans and reports
- Participate in and give presentations at meetings or conferences with high participation from pesticide regulatory, research, and manufacturing communities – the 2015-16 priority is SETAC (Salt Lake City)
- Educate and inform water quality community through presentations at CASQA and other California water quality meetings or conferences
- Update pesticide priority lists based on new scientific and regulatory information.
- Prepare monthly action plans and publish annual report

[16] Partners: USGS NACWA (national monitoring); other states; Water Board SWAMP (Statewide and 9 regions); DPR; POTWs; urban runoff programs; university researchers; pesticide manufacturers.

Table 7. Action Items Anticipated to be Taken Up by CASQA and UP3 Partnership in 2015-2016

Action Items
EPA Pesticide Registration Review (15-year cycle)
Upcoming Environmental Risk Assessments of Interest: • Information sharing with OPP to prepare for Pyrethroids, Fipronil, and Imidacloprid Risk Assessments to be published in mid-2016 • Organophosphates: Malathion, Chlorpyrifos, Diazinon • Others: Copper and its compounds; Dacthal (dioxins); DIDAC, Glyphosate, Polyoxin D Zinc Salt, Simazine, Spinosad/Spinetoram
Upcoming Work Plans of Potential Interest: • Diuron, Dicamba, Chromated Arsenicals, Tributyltin, Ziram (zinc)
Upcoming Registration Review Proposed Decisions • Chlorfenapyr
EPA Registration Applications
Applications of interest: • Priority pesticides (Table 1) • Pesticides proposed for urban, outdoor use with direct pathway for discharge to storm drains • Pesticides with high aquatic toxicity • Pesticides containing priority pollutants
Other EPA Action Items
• U.S. EPA OPP/OW Common Effects Assessment Methodology – continue to press for completion and implementation; request that project address time periods and other discrepancies. • U.S. EPA Nanoscale Materials Pesticides Policy and nanocopper regulation petition decision. • U.S. EPA procedural development activities to support pesticides management, such as urban runoff model development, data requirements, scientific literature review, water quality data collection, and scientific data acceptance policies– seek to make urban runoff's needs a priority; share information to inform decisions. • Endangered species consultations/litigation (Nationwide methodologies could significantly modify urban pesticide evaluation methods; some California cases could affect California urban pesticide use). • Continue to engage EPA Region 9 re CASQA's preferred approach for pesticide monitoring and management in permits and TMDLs.
DPR Registration Applications
Until procedures are modified to provide for surface water quality reviews of all priority pesticides from the urban runoff perspective, screen DPR product registration applications. Continue to screen proposed decisions and comment on activities that pose high risks or provide compelling examples of possible procedural deficiencies. Products of interest: • Products proposed for urban, outdoor use with direct pathway for discharge to storm drains • Products with high aquatic toxicity

Action Items

- Products containing priority pesticides (Table 1)

Watch for Decisions:

- Momfluorothrin (new pyrethroid)
- Fipronil foam product
- Smart Sponge Plus (for use in storm drains)

Other DPR-related Action Items

- Pyrethroids – encourage increased education and enforcement efforts, continue to track implementation activities, obtain regular updates on effectiveness monitoring; review scientific studies, and encourage DPR to take additional actions if necessary for water quality protection.
- Bifenthrin professional products labels – request DPR evaluate enforceability and compliance rates; either start process to ensure that product labels are clarified or seek bifenthrin-specific regulations.
- Fipronil – continue to work with DPR on actions to protect water quality.
- Imidacloprid – share toxicity and monitoring data and initiate discussions with DPR.
- Urban runoff model development – track short-term and long-term efforts and share information to improve approach.
- Urban runoff monitoring and research – continue to encourage coordination with Water Board/MS4 data needs and priorities; encourage monitoring prioritization to better capture pesticides and degradates of interest; share information to improve decisions.
- Methodology for Evaluating Pesticide Registration Applications for Surface Water Protection – share information to encourage DPR to routinely review all classes of products linked to water pollution (e.g., automatically review all storm drain products, antimicrobials, and swimming pool additives), to address degradates in review methods, and to continue to improve accuracy of urban evaluations.

Water Boards Action Items

- Water Board Statewide Urban Pesticides Plan; participate in plan development, including creation of proposed standard NPDES permit requirements and statewide coordinated monitoring approach.
- Water Board Stormwater Strategic Plan – Support Pollution Prevention elements and resource allocation for Statewide Urban Pesticides Plan
- Current-use urban pesticides TMDLs and Basin Plan Amendments: continue tracking Central Valley Water Board pyrethroids and diuron and Central Coast Lower Salinas River Watershed pyrethroids / toxicity.
- State Water Board Policy for Toxicity Assessment and Control – track pesticide monitoring, toxicity testing & other pesticide-related provisions in NPDES Permits.
- TMDL implementation requirements for Phase II permittees – continue participating in development.
- Pesticide/toxicity 303(d) listings, NPDES Permit requirements, and TMDLs – continue tracking.

Other California Agency Action Items

- Adoption of Structural Pest Control Board regulations – increase licensee continuing education requirements for IPM and water quality protection.